UNITED STATES GOVERNMENT

Memorandum

TO Mr. Conrad

DATE 11/27/63

FROM R. H. Jevons

SUBJECT ASSASSINATION OF PRESIDENT
JOHN F. KENNEDY

Tolson
Belmont
Mohr
Casper
Callahan
Conrad
DeLoach
Evans
Gale
Rosen
Sullivan
Tavel
Trotter
Tele. Room
Holmes
Gandy

In connection with our examination of evidence received in the above matter, we have considered all possible examinations and techniques which would be productive in identifying the perpetrator of the crime. It is noted that we have already by means of microscopic examinations, identified the gun used in the assassination and further through handwriting examinations identified Lee Harvey Oswald as the individual who ordered and paid for this gun. It is further noted that an eyewitness reportedly selected Oswald from a line-up as being most similar in appearance to the subject whom the eyewitness saw aiming and firing the rifle at the Presidential car although the eyewitness was unable to make a positive identification.

Among the analytical techniques considered from the beginning has been a rather recently developed technique known as neutron activation analysis, which is an outgrowth of the atomic energy program and which makes it possible to analyze for the presence of much smaller quantities of materials than heretofore possible by the earlier existing techniques. One consideration of this technique in the present case was directed toward the possible detection of powder residues on the person and clothing of the suspect with the objective of showing that he actually fired the gun. In this respect, it is noted that the detection of such residues on the hands and on the person and clothing of Oswald would not necessarily establish the exact kind of weapon fired by him, the time at which he fired the weapon or the number of times the weapon was fired. Accordingly, in view of the nonspecific nature of such results and in view of the massive evidence already available indicating Oswald's guilt, it was not felt that this type of examination would contribute essentially to the investigation and trial of Oswald.

REC 7

Enclosure
1 - Mr. Tolson
1 - Mr. Belmont
1 - Mr. Mohr
1 - Mr. DeLoach
1 - Mr. Rosen
1 - Mr. Sullivan
1 - Mr. Handley, Rm. 5710

ST-104

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However, Oswald is now dead and there will be no trial In view of this development, it is felt that this examination should now receive further consideration in order to protect the Bureau against any possible future allegations, however unfounde that if neutron activation analyses type of analyses had been conducted, one might have obtained extremely significant data.

Such allegations, for example, might originate from relatively highly placed individuals in the Atomic Energy Commission (AEC) charged with developing neutron activation analyses and who will recognize the publicity potential of such allegations.

It is noted that this type of analyses requires access to an atomic reactor, and, as pointed out in earlier memoranda, because of the cost and impossibility of placing such a reactor in any building presently in control of the FBI, the Bureau has not considered it feasible to purchase such a reactor. However, with the Director's approval, we have had for some time, a stand arrangement with the AEC and others whereby we have ready access their facilities for such examinations. Moreover, representativ of the AEC and others have called since the assassination to offe any possible assistance.

The paraffin casts reportedly made by the Dallas Police Department of the hands and face of Oswald are now being forwarde to the FBI and these casts represent the best possibility of applying the neutron activation technique for the detection of powder residues. Accordingly, for the reasons set out above and primarily to place the FBI in a position to refute any speculative allegations as to the potential value if such tests were not made it is felt we should conduct neutron activation tests of the cast upon receipt in the Bureau.

Any such examinations will, of course, be with the stri understanding that the information and dissemination of the resul will be under complete FBI control.

There is attached a more detailed discussion of the technical limitations and related details concerning this matter.

RECOMMENDATION:

That we arrange with AEC to use the facilities under contract to them for the purpose of conducting neutron activation tests on the paraffin casts made by the Dallas Police Department and on any other items of evidence such as clothing where it may appear logical.

Attachment to memorandum Jevons to Conrad dated 11/27/63
Re: ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

Although we already had standing arrangements to use their facilities when necessary, on 11/23/63, representatives of General Atomic Division of General Dynamics, Incorporated, and also members of the Atomic Energy Commission (AEC) telephonically called the FBI Laboratory to advise they stood ready to help if necessary. Our thanks were expressed for their spirit of cooperation. On 11/27/63, the AEC called the FBI Laboratory to advise that in conformity with the President's announced desire that all agencies cooperate in this matter, they wish to assure us that their facilities for neutron activation analysis were completely available. They stated they would conform to our desires for complete control of the specimens during the course of the examinations, of any data obtained from the examinations and all matters relating to dissemination of this data.

NEUTRON ACTIVATION ANALYSIS

Neutron activation analysis involves subjecting small samples to a beam of atomic particles known as neutrons. Elements within the sample having been bombarded by neutrons are transformed in many instances to radioactive elements. These radioactive elements will decay and emit characteristic radiations. By studying the emitting radiations, one can determine trace quantities of elements in a specimen. This method of analysis because of its extreme sensitivity in many areas offers a distinct advantage over other methods of analysis.

POWDER RESIDUES

When a subject fires a weapon his hands, face and clothing are contaminated with invisible deposits referred to as powder residues. If the subject's hands, for example, are coated with paraffin wax, this cast can be subsequently removed and it has been found to carry with it the ingredients of the powder residue. Chemically the paraffin can be tested for nitrates which constitute a significant percentage of the residues. By neutron activation analysis the cast can be analyzed for antimony, barium and copper, metallic elements in trace quantities normally discharged from the primer portion of the cartridge that has been fired.

LIMITATIONS TO THE EXAMINATIONS

A. The chemical test for nitrates to identify powder residues are considered unreliable. Persons handling tobacco, fireworks, fertilizers, and numerous other commonplace items would be expected to react positively to the nitrate test.

B. The neutron activation analysis method for the detection of powder residues is the most practical method known today; however, it does have limitations:

   (1) The residues are characteristic of the primer in the cartridge that has been fired. Analysis of these residues does not normally enable one to determine the type of weapon from which the ammunition was fired.

(2) The time the residues were deposited on the subject cannot be determined.

(3) The number of times the weapon was fired cannot be established.

(4) The residues can be easily removed from the skin of the subject as they are only adhering to the skin by mechanical adhesion. A normal washing may effectively remove these deposits.

It is to be noted in this particular case that the interpretation of the data will be complicated by many factors. The casts were made by the Dallas Police Department and not under our supervision. They were reportedly treated with strong chemicals. The transfer and the loss of significant powder deposits prior to the time the paraffin casts were made represents a strong possibility due to the violent physical contact which was necessary to realize Oswald's apprehension.